

JAPANESE

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CLAIMS DETAILED DESCRIPTION TECHNICAL  
FIELD PRIOR ART EFFECT OF THE INVENTION  
TECHNICAL PROBLEM MEANS OPERATION  
EXAMPLE DESCRIPTION OF DRAWINGS DRAWINGS

[Translation done.]

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## DETAILED DESCRIPTION

[Detailed Description of the Invention]

[0001]

[Industrial Application]This invention relates to the mode coupling form SAW (surface acoustic wave) filter used as filters, such as radio equipment.

[0002]

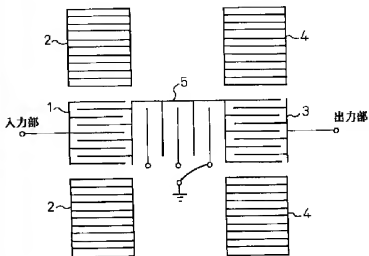
[Description of the Prior Art]The conventional mode coupling form SAW filter was performing mechanical coupling by the interval of two IDT(Inter Digital Transducer: cross finger type converter)1 and 3 (refer to drawing 2). In this composition, on the substrate, adjustment of IDT1 after IDT formation and the interval of 3 was not completed, and easy degree-of-coupling adjustment of it was not completed.

[0003]

[Problem(s) to be Solved by the Invention]There was a problem that the filter of the conventional form would require time dramatically on a design for an above-mentioned reason before determining degree of coupling. Therefore, the purpose of this invention provides IDT for SH waves (Shear Wave) between the input part IDT

Drawing selection **Representative draw**

実施例のモード結合形SAWフィルタの構成を示す図



- 1…入力部IDT
- 2…反射器
- 3…出力部IDT
- 4…反射器
- 5…SH波用IDT

[Translation done.]

Rayleigh waves (surface wave), and the outputting part IDT, It enables it to change the strength of the mechanical combination between the input part IDT and the outputting part IDT equivalent according to grounding of a tap provided in IDT for SH waves, as a result, even after forming IDT on a substrate, adjustment of degree of coupling is made easy, and it is in desired filter characteristics being acquired.

[0004]

[Means for Solving the Problem] In this invention, IDT5 for SH waves is provided between IDT(s) 1 and 3 of an input output section of a mode coupling form SAW filter for Rayleigh waves, and a mode coupling form SAW filter joining together mechanically is provided so that it may illustrate to [drawing 1](#). In other gestalten of this invention, in an above-mentioned mode coupling form SAW filter, IDT5 for SH waves is divided into a multi tap, and a tap is grounded selectively, and it is constituted so that degree-of-coupling adjustment of a mode coupling form SAW filter for Rayleigh waves may be enabled.

[0005]

[Function] If an above-mentioned mode coupling form SAW filter is used, IDT1 of an input output section and 3 are mechanically combinable using the SH wave (Shear Wave) which gets across to rectangular directions to the surface wave (Rayleigh wave) transmitted in a two IDT(s) 1 and 3 top. The degree of coupling between IDT(s) 1 and 3 is changeable by providing a tap in IDT5 for SH waves, and grounding a tap if needed.

[0006]

[Example] The composition of the mode coupling form SAW filter as one example of this invention is shown in [drawing 1](#). An electrode configuration as shown in a figure is obtained by vapor-depositing gold or aluminum to crystal. This mode coupling form filter, Between input part IDT1 of the mode coupling form SAW filter for Rayleigh waves, the antenna reflector 2 similarly provided in the both sides (propagating direction of a Rayleigh wave) of outputting part IDT3 and input part IDT1, the antenna reflector 4 provided in the both sides (propagating direction of a Rayleigh wave) of outputting part IDT3 and IDT1, and 3. IDT5 for SH waves provided is provided.

[0007] The direction of an SH wave input part IDT1 and outputting part IDT3 to a Rayleigh wave For rectangular directions, The direction of each Rayleigh wave is arranged in rectangular directions, since the propagation rate of an SH wave is 1.6 times the Rayleigh wave, the electrode spacing of IDT5 for SH waves provided between IDT(s) 1 and 3 is a 1.6 time pitch, and 3 is connected with IDT1. The signal by which the signal applied to this filter was added to the input

part, and wave filtration was carried out is acquired from an outputting part. A tap is provided in the electrode of IDT5 for SH waves, the energy of the wave spread by choosing and grounding this is changed, and the degree of coupling between IDT1 and 3 can be adjusted. If the degree of coupling between IDT1 and 3 is adjusted, it will become possible to change the characteristic curve of a filter.

[0008] Since it was impossible, adjustment of degree of coupling was difficult for expanding and contracting two intervals, IDT1 and 3, formed on the piezoelectric board once in the composition of the SAW filter of the conventional form. Selection of grounding of the electrode of IDT5 in this example can be performed after forming an IDT interval on a piezoelectric board.

[0009]

[Effect of the Invention] By grounding selectively the tap which provided IDT for SH waves between the input part IDT for Rayleigh waves, and the outputting part IDT, and was provided in IDT for SH waves according to this invention, It enables it to change the distance between the input part IDT and the outputting part IDT equivalent, as a result, even after forming IDT on a substrate, degree of coupling can be adjusted easily, and desired filter characteristics can be acquired.

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